

Google Cloud

Next '24

Cloud-powered,
API-first testing
with Testcontainers
and Kotlin

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Developer advocate

Docker



What drives productivity?

Feedback loops

Cognitive load

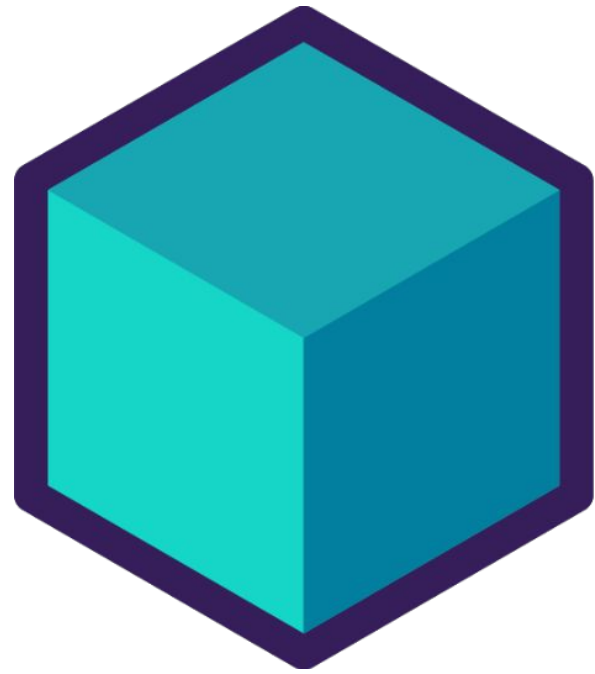
Flow state



Developer inner loop



Images from <https://about.sourcegraph.com/blog/developer-productivity-thoughts>



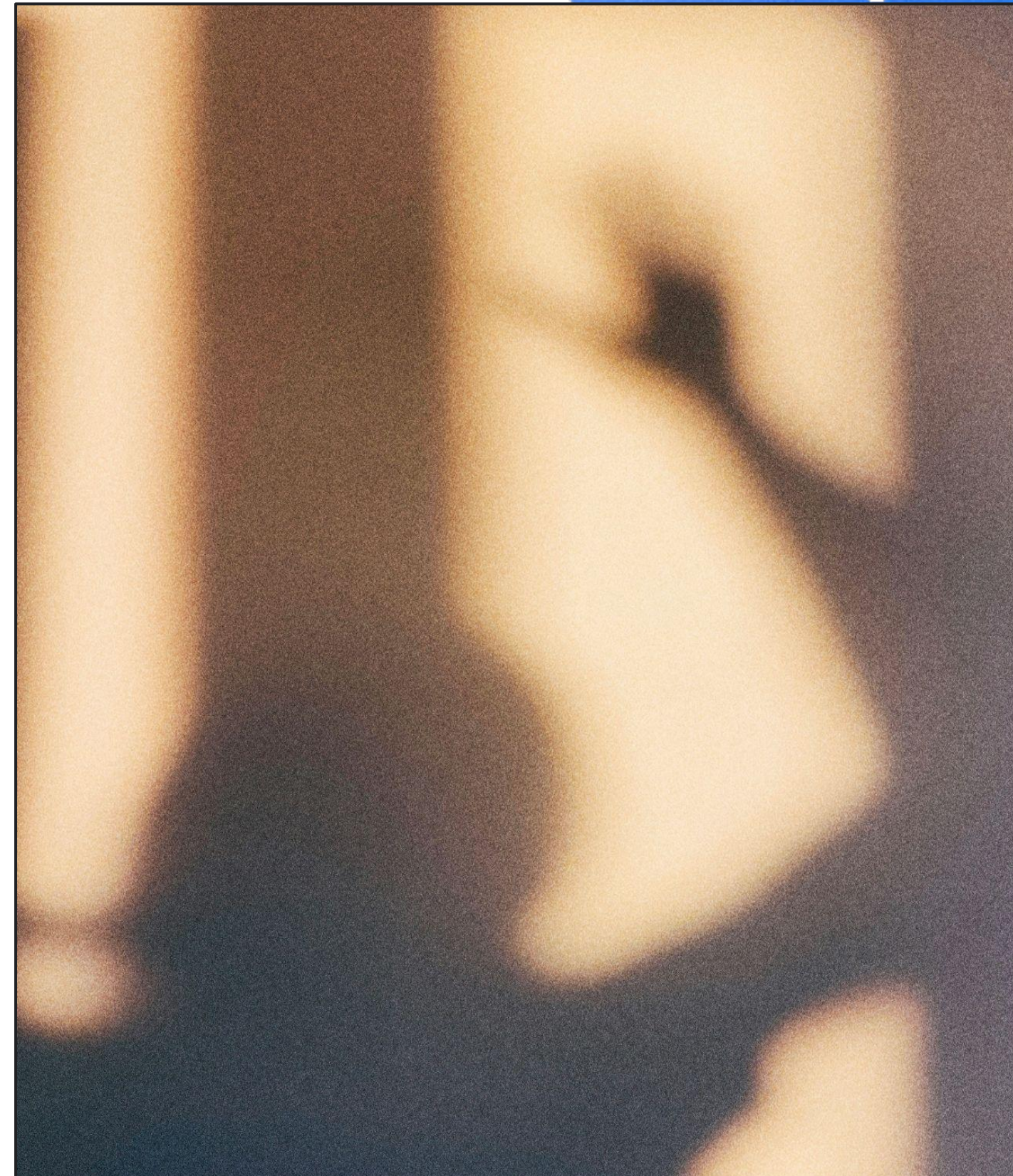
Testcontainers

Functionality

Container lifecycle & cleanup

Service configuration

Integrations with libraries

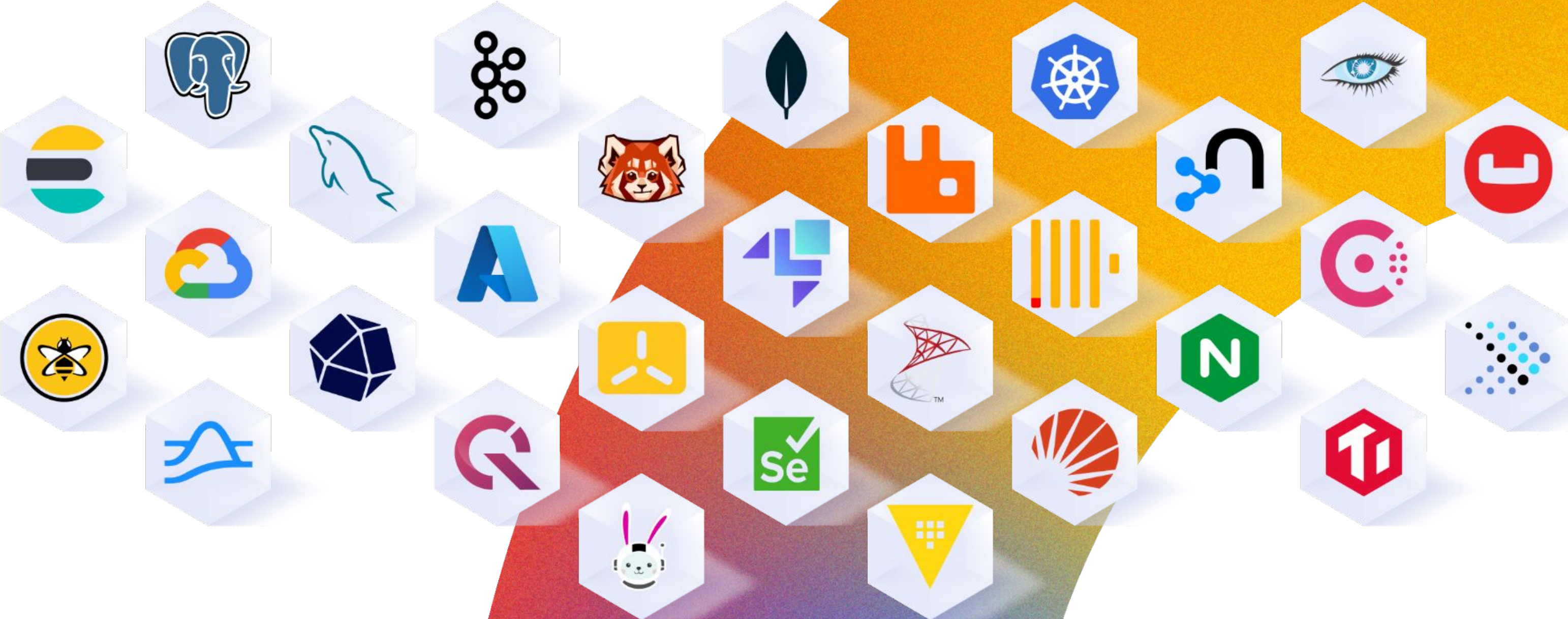


```
var postgres =  
    new PostgreSQLContainer( dockerImageName: "postgres:16-alpine")  
        .withCopyFileToContainer(  
            MountableFile.  
                forClasspathResource(  
                    resourceName: "/schema.sql"),  
                    containerPath: "/docker-entrypoint-initdb.d/schema.sql")  
        .withDatabaseName("test");  
  
postgres.start();  
postgres.getJdbcUrl();
```

```
c, err := postgres.RunContainer(ctx,
    testcontainers.WithImage("postgres:15.3-alpine"),
    postgres.WithInitScripts(filepath.Join(".", "testdata", "dev-db.sql")),
    postgres.WithDatabase("users-db"),
    postgres.WithUsername("postgres"),
    postgres.WithPassword("postgres"),
    testcontainers.WithWaitStrategy(
        wait.ForLog("database system is ready to accept connections").
            WithOccurrence(2).WithStartupTimeout(5*time.Second)),
    )
if err != nil {
    panic(err)
}

connStr, err := c.ConnectionString(ctx, "sslmode=disable")
```


Testcontainers modules



test

Press ⌘ for multiple adds

Testcontainers TESTING

Provide lightweight, throwaway instances of common databases, Selenium web browsers, or anything else that can run in a Docker container. ↵

Spring REST Docs TESTING

Document RESTful services by combining hand-written with AsciiDoctor and auto-generated snippets produced with Spring MVC Test.

Contract Stub Runner TESTING

Stub Runner for HTTP/Messaging based communication. Allows creating WireMock stubs from RestDocs tests.

Embedded LDAP Server TESTING

Provides a platform neutral way for running a LDAP server in unit tests.

Embedded MongoDB Database TESTING

Provides a platform neutral way for running MongoDB in unit tests.

Contract Verifier TESTING

Moves TDD to the level of software architecture by enabling Consumer Driven Contract (CDC) development.

ADD DEPENDENCIES...

Project

 Gradle Project Maven Project

Spring Boot

 3.0.0 (SNAPSHOT) 3.0.0 (RC2) 2.6.14 (SNAPSHOT) 2.6.13

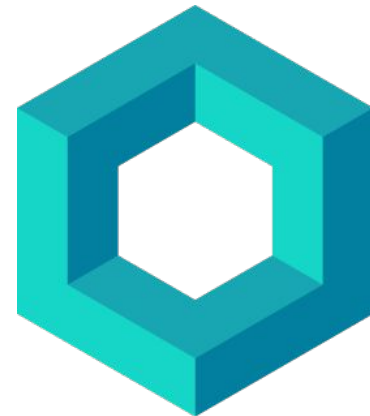
Project Metadata

Group Artifact Name Description Package name Packaging Jar WarJava 19 17 11 8

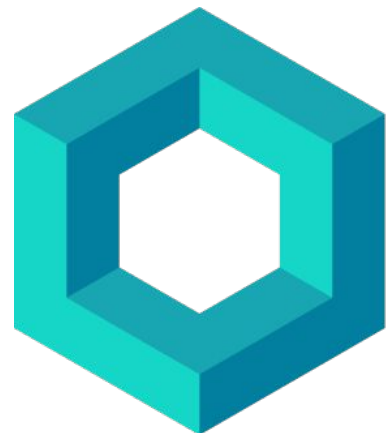
Testcontainers experience



Testcontainers



**Testcontainers
Desktop** by docker.



**Testcontainers
Cloud** by docker.

DEMO

WARNING
Security
Cameras In Use



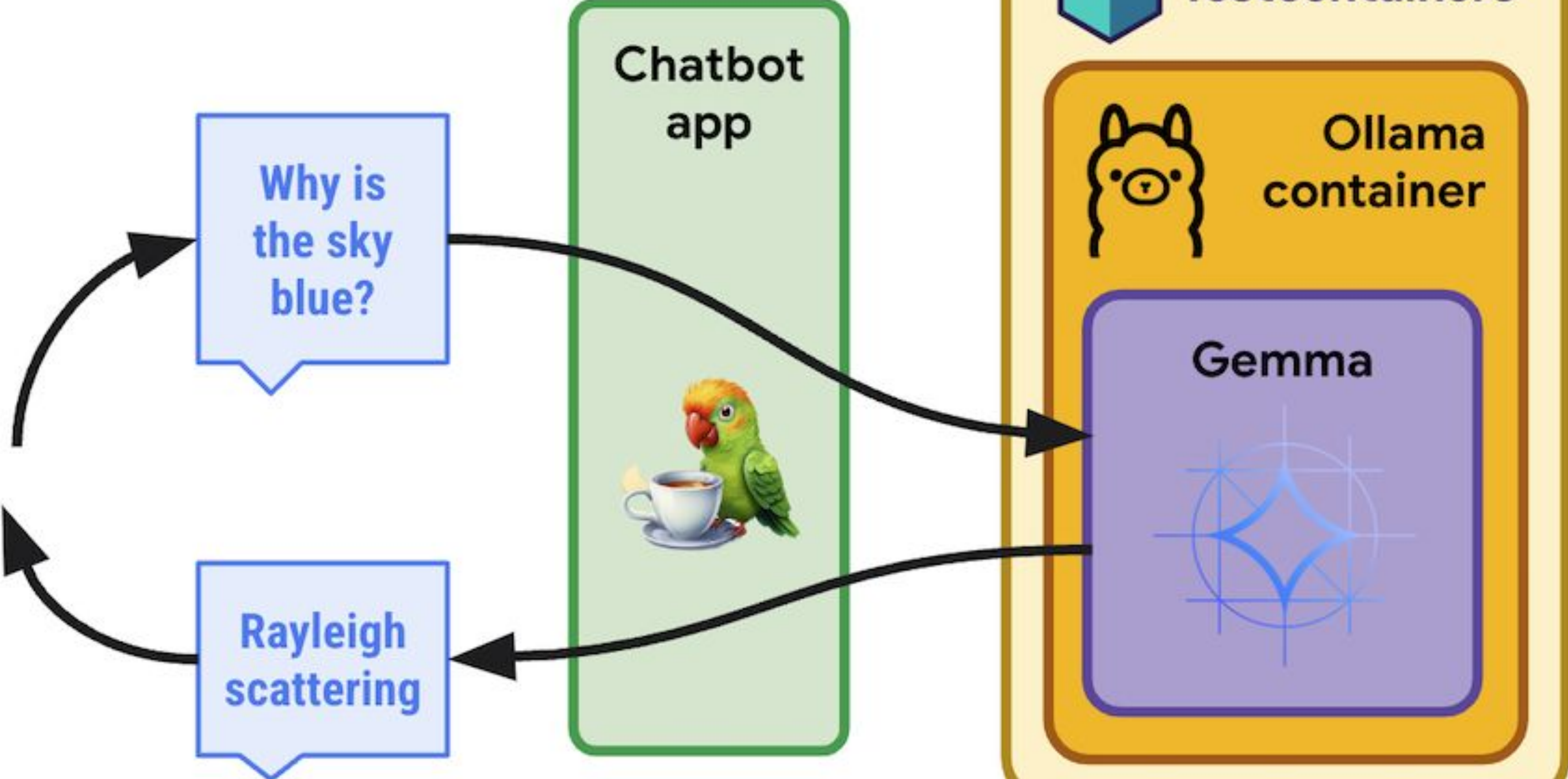
Testcontainers in Cloud Build

Ensure Docker environment is available

Run tests as usual

```
steps:  
  - name: 'maven:3-openjdk-18-slim'  
    args:  
      - '-c'  
      - |  
        mvn test  
    dir: '${_APP_NAME}'  
    entrypoint: bash
```

A bit of AI



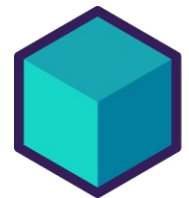
<https://glaforge.dev/posts/2024/04/04/calling-gemma-with-ollama-and-testcontainers/>

Developers  **APIs**

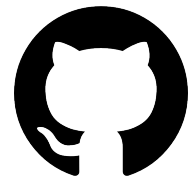
Resources



slack.testcontainers.com



testcontainers.com



github.com/testcontainers

Ready to build what's next?

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Thank you

